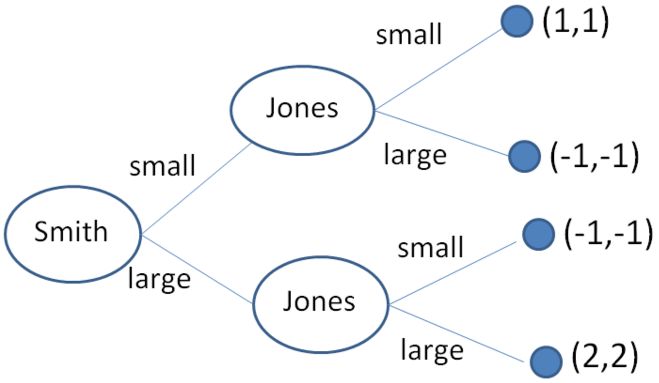
EE481 Industrial Economics (In-class Exercise I)

1. A sequential game



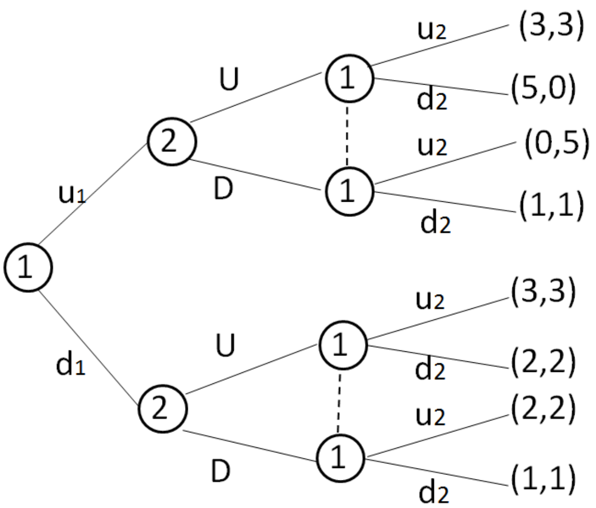
1.1 In this game, who moves first? ____

1.2 How many periods are there in this game? ____________________________________

1.3 How many subgames are there in this game? __________________________________

1.3 What is the Subgame Perfect Nash Equilibrium (SPNE)? _________________________

2. An imperfect information game



2.1 In this game, who moves first? ____

2.2 How many subgames are there in this game? __________________________________

2.3 How many periods are there in this game? ____________________________________

2.4 Find SPNE ____

2.5 What is the payoff for each player?____

3. 1. **The Cartel Exercise**

Suppose there are 4 firms in the market. EACH faces the following individual demand curve:

$$p=100-2q.$$

1. If all 4 firms act like a monopoly in this market, and mc=10 , calculate how much joint-profit they can make.
2. Calculate the joint-monopoly price and quantity.
3. If they agree to split the profit equally, how many unit should each firm produce?
4. If one of the firms decides to increase the quantity by 50% (while others produce the same amount), what would be the market price now?
5. From problem 4), calculate how much profit each firm makes.
6. Do you think acting like a joint-monopoly is a Nash Equilibrium? Why or why not?